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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,081	09/15/2006	Masaru Hidaka	295431US40X PCT	7845
22850	7590	12/17/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER TISCHLER, FRANCES	
			ART UNIT	PAPER NUMBER
			1796	
			NOTIFICATION DATE	DELIVERY MODE
			12/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/593,081	Applicant(s) HIDAKA ET AL.	
	Examiner FRANCES TISCHLER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The 112 rejection not addressed below is deemed withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Junya et al (JP 10-024274).

The rejection stands as per reasons of record of the previous office action of 7/11/08.

Regarding claim 1: Applicant claims a method for decomposing a plastic comprising:

- treating the thermosetting resin, which comprises:
 - a polyester and its crosslinking moiety,
 - with sub-critical water of a temperature lower than the thermal decomposition temperature of the thermosetting resin, and
 - recovering a compound comprising an acid residue derived from the polyester and a residue derived from the crosslinking moiety.

Regarding claims 2 and 3: Applicant claims the method wherein the sub-critical water contains an alkaline salt, wherein the alkaline salt is a hydroxide of an alkaline metal.

Junya discloses (abstract, [0006], [0009], example 2, claims 1 – 3) a method for treating the industrial and domestic waste, specifically thermosetting plastics such as polyesters, to recover low to medium molecular weight compounds. These low to medium weight compounds read on applicant's residues. Junya's thermosetting plastics read on applicant's crosslinking moiety, since a thermosetting plastic is inherently crosslinked. Junya's thermosetting resin is hydrolyzed with sub-critical water mixed with a base, such as NaOH, corresponding to applicant's sub-critical water containing an

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alkaline salt which is a hydroxide of alkaline metal. Junya discloses an example of recycling an epoxy resin, by the method described above, wherein the temperature is adjusted to 400°C, reading on applicant's claim of keeping the temperature lower than the thermal decomposition of the thermosetting resin.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Junya et al (JP 10-024274).

The rejection stands as per reasons of record of the previous office action of 7/11/08.

Applicant claims the content of the alkaline salt is not less than 2 molar equivalents. The comparison is made with the number of moles of the acid residue from the reaction.

Junya discloses (abstract, [006], example claims 1 – 3), as described above, a method for treating industrial and domestic waste, specifically thermosetting plastics such as polyesters, to recover low to medium molecular weight compounds. The waste

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thermosetting resin is hydrolyzed with sub-critical water mixed with a base, such as NaOH. Junya discloses sub-critical water with 2% base, and also the use of 500g of NaOH when 10Kg of raw reclaimed epoxy resin is used. However, Junya fails to teach the amount or concentration of the alkaline salt used compared to the amount of acid product obtained from the reaction.

Alkaline salt or base is used as a catalyst in polyester hydrolysis. Therefore, the amount that should be used depends on the amount of reactant present or on the amount of products that will result from the reaction. For example, two COOH for each Ca^{2+} , one COOH for each Na^+ , etc. will ensure that a one-to-one correspondence between catalyst and polymer. Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the amount of alkaline salt used to speed up the reaction based on the amount of reactant or product present so that at least a 2 molar equivalent of the base is used.

Response to Arguments

Applicant's arguments filed 10/14/08 have been fully considered but they are not persuasive.

Applicant submits that prior art does not teach or suggest "recovering a compound comprising an acid residue derived from the polyester and a residue derived from a crosslinking moiety, obtained from the treating of the thermosetting resin", where both monomers and a compound comprising acid and crosslinking residues can be recovered to be used as raw materials for polyester or for thermosetting resins.

Applicant submits that prior art simply teaches obtaining a low to medium molecular weight compound to be used for thermosetting resins, respectively.

As stated in the previous office action, Junya discloses a method of treating the same thermosetting resins as claimed by applicant by the same method as claimed by Applicant to obtain low molecular weight to medium molecular weight compounds to be

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used as thermosetting resins as claimed by Applicant. Junya's low molecular weight can be considered to be comparable to applicant's monomers. It is noted that the instant claims do not read on monomers. Junya's low and medium molecular weight compound resulting from the recovery of the waste thermosetting resin which is then used to synthesize thermosetting resins read on applicant's claim of a compound made of acid and crosslinking residues to be used as thermosetting resins since in both cases the starting waste thermosetting resin to be recovered is the same, having both an acid moiety and a crosslinking moiety, and they are both recovered by the same method which means they both break apart in a similar manner. It can be reasonably expected, therefore, that the resulting recovered materials disclosed by Junya is the same as claimed by Applicant. Additionally, since Junya's recovered compound is used to make new thermosetting resins, it must contain the acid and the crosslinking moieties necessary to make such thermosetting resin, as claimed by Applicant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES TISCHLER whose telephone number is (571)270-5458. The examiner can normally be reached on Monday-Friday 7:30AM - 5:00 PM; off every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

Frances Tischler
Examiner
Art Unit 1796

/FT/

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